BELL (A. N.)

# DISINFECTION OF VESSELS.

BY

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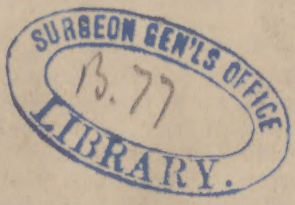


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# DISINFECTION OF VESSELS.

Infection is a poisonous emanation of organic matter in a state of putrefaction. The chief sources of putrefying organic matter consist in *still* air, moisture, darkness, and warmth; and these are the conditions of all the most fatal epidemic diseases.

The existence of organic matter in the atmosphere is universal. It is every where the product of combustion and decay, and is given off by all animals in respiration The smoldering alluvium of a tropical delta, bedarkened by a thick-leaved vegetation and immersed in an almost perpetual fog, is, of all places, most prolific of infection. The putrefying mass is also a hot-bed for the production of innumerable species of short-lived *fungi*, and the myriad spores of these commingle with the putrid emanations. The varying conditions of climate and season render these emanations insignificant at one time, but deadly at another; and in this latter case persons are not only liable to immediate danger from respiration, but their clothing, the *materiel* of commerce, the bulkheads of vessels—furniture and cargo—are all subject to the pervading infection. The *materiel* of commerce thus infected become *fomites* or retainers of infection, liable not only to communicate disease to persons in their proximity, but to become the *leaven*, as it were, of new places possessed of the fitting conditions of climate and domicil. The processes of life, death, and decomposition are accommodated to the whole of Nature's domain. Latitude, elevation, nature of the soil, degree of cultivation, relative position in regard to mountains, forests, rivers, etc., and general aspect of the neighborhood, all modify the conditions of the atmosphere and man's liability to pervading influences. It is just as natural that stagnation, dampness, darkness, and high temperature should cause disease and death, as that a free circulation of pure air, light, dryness, and moderate warmth should promote health and long life. And it is, also, just as natural that there should exist conditions favorable to death and putrefaction, as that there should exist conditions favorable to vitality and health. The qualities of all natural phenomena have certain operations, each peculiar to itself, yet all in harmony with every

other. We cannot prevent the dews of heaven, nor the heat of the sun, nor the processes of decomposition; but we can understand the course and order of natural phenomena, we can trace out the laws that govern them and ascertain our relations to them. And if we apply our knowledge of the laws of organization in tracing the causes of ill health, it will enable us to escape all such diseases as spring from ignorance and misconduct.

*Pure air* is nature's first great disinfectant, which, were it fully and constantly accessible, would altogether prevent noxious emanations, partly by its dispersion of matter and partly by its chemical properties; tending constantly to dilute, disperse, and decompose all pernicious emanations from whatever source. But it was surely never intended by the Creator that an important natural phenomenon—the transition of matter—should either cease or be materially modified for the special benefit of one particular race of his creatures. On the contrary, it is manifest that there are many places both natural and artificial to which a sufficient supply of pure air for disinfection is inaccessible. The winds from the direction and in the immediate vicinity of such places are in some degree like the Simoon of Africa and the Sorocco of Italy—they are loaded with dangerous emanations from the localities over which they have passed. As a general rule, it is unsafe to be within two miles to the leeward of vessels or places known to be infected.

It is a common impression that because of the natural tendency of gases to rapidly permeate each other and become equally diffused, that, therefore, simple exposure to the atmosphere necessarily overcomes infection. This is only true to a limited extent. If infection were a *gas* it would doubtless be wholly true; but the putrefying particles of organic matter, though light, are nevertheless heavier than atmospheric air, and their tendency is, in consequence, to occupy the lower strata. Hence the holds of vessels, from the very nature of their structure, cannot be so freely exposed to the atmosphere as to disinfect them, except at very long periods of time. The effect may be speedily manifest, or an indefinite length of time may elapse, according to the conditions of the atmosphere and the state of the vessel favorable or otherwise to putrefaction, and the danger still exist. Under these circumstances and climatic condition favorable to the spread of infection, it is manifestly absurd to undertake to limit the period of time by days when an infected ship or cargo may be admitted to pratique Yet this is the common practice of quarantine. The following examples fell under my observation last summer. The steamship *Khersonese* arrived at New York, August 17th, four days from Bermuda, a healthy port. She had been in quarantine at Bermuda twenty-four days and had lost in all since leaving Nassau, an infected port—her last port of departure—some six weeks before her arrival here, ten persons with yellow fever. On arrival she had no sickness on board, but, having had it, she was "fumigated" and allowed anchorage at upper quarantine. Three days afterwards she had a case of yellow fever. Fifteen days afterwards, and after she had discharged ballast and taken in cargo, she had two other cases. She shortly afterwards departed. The steamer *Dispatch* arrived August 29th, four days from Nassau. She had lost five men by yellow fever, and on arrival had four cases. She was repeatedly "fumigated," the hatches kept off and part of her cargo taken out at lower quarantine. No new case having occurred, after two weeks detention she was permitted to go to upper quarantine, discharge

balance of cargo, and reload. September 29th, just one month from the time of her arrival, she had a new and very malignant case, that died with black vomit on the third day.

*Water*, next to air, is an important disinfecting agent. Although moisture, associated with other conditions, is rapidly promotive of putrefaction and the propagation of *fungi*, tending to perpetuate the mischief, yet total submersion involves a different train of circumstances of a far less noxious character. Organic matter by maceration in water is oxydized, and among other products nitric acid is generated, which is antiseptic. Everybody knows that if a marsh is continually submerged it is far less dangerous than when subject to ebb and flow; especially is this the case if the water is cold. If the water is warm, organic matters in a state of decay are liable to be borne off with the vapors and so become injurious. Hot water is appropriately considered under *heat*. *Soil*, too, is a certain but slow disinfectant. The interment of *fomites*, like maceration in water, can be practiced only to a limited degree.

*Cold*, when of sufficient intensity, is a powerful disinfectant and antiseptic. The iced-up animals of the frigid zone are an example. And the recurrent seasons of winter, it is well known, effectually arrests epidemic diseases in temperate latitudes. Infection subjected to a freezing temperature, even for a short period of time, is effectually destroyed; but the difficulty consists in the application of the necessary degree at the proper time. Infection pervades the closest textures—every seam and crevice. How is it possible in the midst of a warm external atmosphere and the waters of the gulf stream to apply a freezing temperature to the *whole* interior of a ship and cargo? Of many examples known to the writer, of the futility of artificial cold to infected vessels, the following one will suffice: April 15th, 1858, the U. S. steamer *Susquehanna* arrived at New York infected with yellow fever. After about sixty days detention, and after the weather had become very hot, she was ordered by the health officer to be broken-out for the purpose of freezing, by means of ice put on board. The experiment cost the government over $20,000 and many valuable lives. She continued to have cases of yellow fever on board, and was not admitted to pratique until after frost in November.

It has been the common practice of the Navy Department in peaceful times to order vessels that have had yellow fever on board to lie in some northern port during the next succeeding winter. It is scarcely necessary to add that this is impracticable in time of war, and at all times to the merchant. Besides, it is of the first importance for the safety of life, that the means of disinfection should be expeditious and practicable at all seasons and places. *Infection, whenever and wherever it is found to exist, should be destroyed or avoided as speedily as possible.*

*Heat* is the most speedy, certain, powerful, and practicable disinfectant known to science. In Egypt the plague is destroyed by the heat of midsummer. Putrefaction is arrested; mummies are preserved in the burning sands for an indefinite period. And in climates where epidemic diseases are most likely to prevail, they rarely do so at an average temperature above 85° Fahrenheit. Dryness doubtless has something to do with this. In tropical marshes, "a fire in the camp" is proverbial for its disinfecting properties. Nevertheless, heat appears to be equally efficacious in the form of steam and hot water. The writer of this paper has a lively recollection

of an intermittent fever which he shared with two of his messmates in the ward-room of a small naval steamer, more than a dozen years ago, while far out at sea and without having had any communication with the shore to account for it. On searching for the cause, putrefying vegetables were found in the mess-lockers under the bunks of the parties affected. The removal of these and a thorough cleansing with *hot salt-water* put an effectual stop to the disease. Sausage poison, which has killed many persons in Germany, is effectually destroyed by boiling water.

Impressed with facts similar to these, Dr. William Henry, F. R. S.' of Manchester, as long ago as the year 1824, instituted a series of experiments to test the effects of heat upon the "*contagious element*" of small pox.—Contagion is sometimes used synonymously with infection. It has, however, a different signification. The meaning of contagion is the transmission of disease from one person to another by contact: direct, as by the touch of the diseased person, or indirect, by contact with things that have been used by such person, or by breathing the air in close proximity with him. Syphilis, small pox, and typhus are examples of contagious disease; and these diseases are in a great measure independent of some of the most important conditions of infection. They are more liable to prevail in a low than in a high temperature, and in their origin chiefly depend upon filth and bad food. Persons sick with contagious disease are liable to infect surrounding things, clothing, furniture, the air of the room, etc; but as the character of the disease continues the same, it is still denominated contagious—*communicable by persons*. Infectious disease is *not* communicable by persons, but by *things*, and a person sick with it, when divested of *fomites*, clothing, etc., can neither communicate his disease to other persons nor to other things. In this, however, they are fortunately alike: their *fomites* are equally capable of being destroyed by heat. —Dr. Henry's first series of experiments satisfactorily established the fact "that the infectious matter of cow-pox is rendered inert by a temperature of 140° Fahrenheit," from whence he "inferred that more active contagions are probably destructible at temperatures not exceeding 212° Fahrenheit." His next series of experiments were upon the personal *fomites* of typhus and scarlet fever. Three flannel shirts, taken on three successive days from a strongly marked case of typhus fever, were subjected to 204° Fahrenheit for an hour and three-quarter. These personal *fomites* being, before the application of heat, as thoroughly charged with the contagious principle as any garment could be, were tested as follows: One was placed directly under and within twelve inches of the nostrils of a person engaged in writing, and who was excessively fatigued from previous exercise and had observed an unbroken fast for eight hours. This test of exposure was continued for two hours. The second shirt was put on and worn next to the body of a person for two hours. And the third, with the view of giving activity to any contagious matter "which might possibly have escaped decomposition," was put into an air-tight canister for twenty-six days. It was then taken out and placed within twelve inches of the face of a person for four hours, "a gentle current being contrived to blow upon him from the flannel during the whole time." *In none of these instances was the fever communicated, and no injurious effects were experienced.* Dr. Henry next performed a precisely similar series of experiments with the *fomites* of scarlet fever, which proved to his satisfaction "*that by exposure to a temperature not below*

200° *Fahrenheit, during at least one hour, the contagious matter of scarlatina is either dissipated or destroyed.*" And he remarks, "the circumstances under which the experiments were conducted render it, I think, demonstrable that the disinfecting agency belongs to heat alone; for the receptacle in which the infected waistcoats were placed having in every instance been closed, change of air could have had no share in the effect. The phenomena, then, are reduced to their simplest form, and the results put us in possession of a disinfecting agent the most searching that nature affords—*one that penetrates into the inmost recesses of matter in all its various states.*" Having satisfied himself in this direction, Dr. HENRY next undertook to ascertain what elevation of temperature "cotton and other substances likely to harbor contagion of the plague or typhus would sustain without injury, the heat being applied to both the raw staples and to their various fabrics. A quantity of raw cotton, subjected to a dry temperature of 190° Fahrenheit, which was steadily kept up in the inner compartment of a double vessel heated by steam during two hours, become 'fuzzy' on account of the loss of its natural moisture, and for the same cause the strength of the yarn was for the time impaired; but after being left for two or three days in a room without fire a great change had taken place in its appearance, and it was found on trial that the cotton was as capable of being spun into perfect yarn as that originally employed. On accurate trial of the twist which had been spun from it, a hank supported an equal weight with a hank of the same fineness that had been spun from cotton fresh from the bag. This fact, established by repeated experiments, proves that, with the recovery of its hygrometrical moisture, cotton which had been heated regains its tenacity and becomes as fit as ever for being applied to manufacturing purposes." A quantity of cotton yarn was tested in like manner with like result. "Articles of cotton, silk, and wool, after being manufactured, both separately and in a mixed state, into piece-goods for clothing, were submitted to the same treatment. And some of these were of the most fugitive colors and delicate textures, yet after being exposed three hours to a dry heat of 180° Fahrenheit, and then left a few hours in a cool room, they were pronounced perfectly uninjured in every respect. Furs and feathers, similarly heated, were also uninjured. In subsequent experiments the temperatures were raised forty or fifty degrees higher without injury to the fabrics."*

Dr. VON BUSCH, of Berlin, having the benefit of Dr. HENRY'S experiments, in February and March, 1851, after having ineffectually made all the usual appliances—thorough cleansing, aeration, fumigation, etc.—for the purpose of disinfecting the Berlin Lying-in Hospital of puerperal fever, determined to try the effect of dry heat. All the beds, wardrobes, and hospital utensils being retained in the wards, common wood stoves were introduced, and a steady temperature of about 150° Fahrenheit was kept up for two days. The wards were immediately reoccupied by the same class of patients, with the same individual liabilities as before, and the result was found to be triumphant! The infection was destroyed and the inmates were safe. A subsequent return of the disease on the following year was destroyed in the same manner.†

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* Philosophical Magazine, 1831–32.

† Neue Zeitschrift Fur Geburtskunde, Berlin, 1852. Bull. de Therapeut. 1853.

A striking instance of the disinfecting power of heat to a badly infected ship is referred to in Vol. VIII. of the Royal Medico-Chirurgical Transactions, as being contained in the official report of Dr. Wm. Ferguson, Inspector General and Chief Medical Director for many years in the Windward and Leeward Islands. The reference states that "the transport ship *Regalia*, being badly infected with yellow fever, while at English Harbor, underwent fumigations without the least effect in arresting future attacks or their fatality; and that it was not until after her arrival in Carlisle Bay, where she was completely cleared, and with her hatches closed, and *her whole hold exposed to the concentrated heat of many stoves, that fever ceased.*"

Dr. Elisha Harris, now of the U. S. Sanitary Commission, in a paper on *The Utility and Application of Heat as a Disinfectant*, read before the Fourth National Quarantine and Sanitary Convention, Boston, 1860, states, that "During a protracted and instructive experience in the superintendence of the New York Quarantine Hopitals the following significant facts were noted.

"During a period of nearly fifty years, the washing and drying of the contaminated clothing from hospital patients and infected vessels had been performed in the ordinary way without the use of steam. The diffusion of fatal fevers from those *fomites* of infection was notorious during that protracted period. Immediately after the introduction of steam-tubs for boiling, and a steam-heated chamber for drying the clothing, and obviously as a result of those improvements, the occurence of infectious or quarantine diseases among the washerwomen of that establishment ceased—or at least they occurred but very rarely, aud then from sources to which the steam heat had not been applied.

"Early in the summer of 1856, when large quantities of dunnage were ordered to the washhouse from vessels infected with yellow fever, I ascertained that the two washerwomen who were attacked with that malady had been handling and washing various articles of clothing previous to steaming or boiling them. Though those unfortunate washers might have contracted the fever elsewhere than in the wash-room, it was deemed expedient to use greater precautions against infection, and accordingly directions were given that all clothing, both from ships and hospitals, should be steamed in the closed tubs previous to being distributed to the washers. Infected dunnage and clothing continued to be received in large quantities for several months subsequent to that order, but no more cases of yellow fever occurred among the washers.

"Again, in the summer of 1859, a floating hospital was placed under my superintendence for the reception and care of all cases of yellow fever and other pestilential diseases arriving at the port of New York. The practice of burning all dunnage, bedding, and other clothing from infected vessels having obtained favor with the authorities who witnessed the same expensive and unsatisfactory process applied to the entire quarantine establishment, it had been advised that a like summary method of purification be continued in connection with the hospital ship—the famous iron scow for the burning of infected ships' clothing, bedding, and dunnage, being still in existence. Accordingly, no apparatus or provision of any kind had been placed on board for the cleansing or for the reception and proper care of infected ships' clothing, nor even for the washing and preservation of the

clothing of the patients and their bedding. The hospital ship had already been placed at the yellow fever anchorage—twenty miles from the city—and was awaiting the arrival of the sick with fever. Under these circumstances a wash-room was, under my direction, hastily extemporized—furnished with a copper steam-generator and capacious steam-vats, steam wash-tubs, etc. This apparatus was placed in one of the galleries that had previously been constructed upon the outside of the vessel amidship, and to the after end of each of which, entrance was made by the gangway outside, both from boats and the wards.

"Into the steam-vats was thrown every infected thing received from vessels, as well as all hospital and patients' clothing, etc., that required cleansing. All articles from infected vessels were received directly into the steam-chamber, from boats, without entering the ship itself, or in any manner exposing it or its inmates to the danger of infectious contamination; while in the wards of the hospital, a like safe regulation was adopted, requiring every article, as soon as soiled, to be removed to the steam-vats; and there all substances capable of being febrile *fomites* were instantaneously heated to the boiling point, or even a higher temperature. It will be observed that these arrangements contemplated the preservation of both the clothing and the wards from becoming *fomites* or *foci* of infection.

"The prediction having been reiterated by many persons that the hospital ship would certainly become infected, and be in itself a focus of pestilence, we are happy now to record the fact that with twelve cases of yellow fever, and with twelve cases of other maladies far more liable to personal or fometic communication, there was not an hour of sickness among all the employes of the Floating Hospital during the six months it continued in service, though the washerwomen and ten of the other employes had never suffered from yellow fever, and had no specific protection from any disease except smallpox."

The experiences of the Floating Hospital since Dr. HARRIS' superintendence have been equally favorable.

Of all *fomites* a foul ship is the most persistent and the most to be dreaded. During the summer of 1847 almost every vessel of the United States naval squadron in the vicinity of Vera Cruz became infected with yellow fever. Among the rest the steamer *Vixen* had had a good deal of river service, was very filthy, filled with vermin, and so badly infected with fever toward the latter part of the season, that all hands were constrained to sleep on deck. Though yellow fever ceased to *prevail* during the season of the northers, (the winter months,) nevertheless the crew of the *Vixen* continued to be in a sickly condition, with an occasional case of fever, sufficiently typical to remind us that "yellow jack" had not departed. Before the return of hot weather, about the first of the following May, (1848,) there being no immediate prospect of our going North, it became expedient to "break-out" as far as practicable while on sea-service, and paint ship. Previous to undertaking this, the commander, the late JAMES H. WARD, Esq., resolved on a final effort for the extermination of the vermin by *steam*. Everything susceptible of injury was taken on deck, the hatches closed, and by means of a common leather hose-connection steam was turned in below decks. This was kept up for two or three hours, so that every crevice was completely permeated. After this there was a thorough scraping, whitewashing, and painting. There was an immediate improvement in the

health of the crew, *and not another case of fever to the end of the cruise in midsummer.*

A few weeks subsequent to the steaming of the *Vixen*, the gunboat *Mahones*, Commander W. D. Porter, Esq., having been on a surveying expedition up the Tuxpan River, returned to the anchorage at the mouth of that river, and telegraphed for the medical officer of the *Vixen* to visit the sick. *There I found three cases of yellow fever, and within a few days four others occurred.* The *Mahones* was a captured vessel from the Mexicans, had never been off the coast, and was filthy in the extreme. The salutary effects of the steaming on board the *Vixen*, both for vermin and *fomites*—no unusual associates, by the way—were so palpable that the same process was forthwith advised and applied, by means of the *Vixen's* engine and hose, to the *Mahones*, and, as in the first case, fever and vermin both ceased to exist—*there was not another case.* These vessels both continued on service in the vicinity of Vera Cruz until the following August, when they were sent to Norfolk and were at once admitted to pratique. The *Mahones* was there laid up until sold. The *Vixen*, after remaining three weeks without "breaking-out," was transferred to the coast survey in the Chesapeake Bay for the remainder of the summer. In neither of these vessels was there any return of the fever.

About the same time that the *Vixen* and *Mahones* arrived at Norfolk, the frigate *Cumberland* and the steamer *Scorpion* arrived at New York. The *Scorpion* was at once quarantined on account of recent cases of yellow fever on board; and the *Cumberland*, not having had any cases since the previous season, was, after "fumigation" and a few days' detention, permitted to go up to the navy yard to "break-out." But scarcely had the work commenced before the yellow fever also broke out on board, and the vessel was, in consequence, sent down to quarantine and there kept until frost.

The *Cumberland* and *Scorpion* were of the same squadron as the *Vixen* and *Mahones*, were more commodious, better ventilated, and in every respect in better condition for health, *excepting that they had not been steamed.*

Deeply impressed with the benefit of heat, as applied in the cases of the *Vixen* and *Mahones*, I have frequently commended it; but until during my superintendency of the Floating Hospital last summer, I am not aware of its having been put in practice. Of all the infected vessels that arrived at this port last year, the steamer *Delaware* was probably the worst; at any rate, the malignancy of the fever from that vessel was greater than that from any other. The *Delaware* had proceeded from the Tortugas in the early part of August with invalid soldiers on board, stopped at Keywest, Fernandina, St. Augustine, and Port Royal, where, in consequence of having yellow fever on board, she was put in quarantine twelve days, and then sent to New York. She arrived here September 21st, having lost one man with the fever on the passage from Port Royal. On arrival her commander, Captain James S. Cannon, and two of the crew were sent to the Floating Hospital, and within five days afterwards seven of the invalid soldiers —all well marked cases of yellow fever, and some of them so malignant as to have black vomit supervene within a few hours from the time of attack, and to die within forty-eight hours. One died on board the *Delaware* within twenty-four hours, his case being so malignant that the boarding-officer deemed it useless to transfer him. In this state of affairs, at my urgent request, the remainder of the invalid soldiers (18) were transferred to

the (yellow fever) Floating Hospital for safety. They all escaped the disease. And I have not the least doubt that, if all the soldiers had been removed on arrival, several lives might have been saved, instead of lost by depending upon the effects of "fumigation." During the convalescence of Capt. CANNON I recommended to him the use of steam for the purpose of effectually disinfecting his vessel. I subsequently received the following letter:

"U. S. TRANSPORT 'DELAWARE,'
"NEW YORK, *November 30th*, 1862.

"Dr. BELL:

"*Dear Sir*—During my confinement in Quarantine Hospital with yellow fever last summer, you suggested the idea of disinfecting my vessel by steam. In accordance with the suggestion, before my recovery the engineer steamed the lower cabin, where nearly all the sick had been confined. After my recovery I more effectually steamed the vessel by closing her up below and driving the steam through her lower hold and bilges. This I did by attaching a hose to the boiler and leading it below through an aperture left for that purpose. Although we remained in quarantine three weeks after the first steaming, we had no sickness among a crew of twenty persons; and since that time the steamer *Delaware* has been in a perfectly healthy state. After refitting, the *Delaware* was sent to Port Royal with soldiers, and encountered a heavy gale; of course everything was damp, but no sickness occurred on board, and the troops remained perfectly healthy after landing. On my return, over a hundred invalid soldiers came North with me, but there was no sickness among them except that which they brought from the hospitals. The only injury resulting from the use of the steam was to the paint, which it stained; and the first time, charring the leather, and the second time, melting the rubber hose. In using steam, hose which cannot be effected by heat easily ought to be provided especially for the purpose, by a copper coupling about ten feet long attached to the cock where the steam comes directly from the boiler and the heat is most intense. Much injury might otherwise result, from the cracking of the hose, if leather, or melting it, if rubber, by the escape of steam.

"I am so well satisfied of the beneficial effects of steam on shipboard, that I would be sure of cleaning my vessel of that dread disease—the yellow fever—by its use, in a very short time.

"I am, very respectfully,
"Your ob't serv't,
"JAMES S. CANNON,
"*Master U. S. Transport Steamer Delaware.*"

Such are the experiences of heat as a disinfectant. The important deductions to be made are, that a temperature of about 150° Fahrenheit effectually destroys infection. Indeed, it is safe to infer that a temperature of about 145°, which coagulates albumen, if kept up for forty-eight hours, is amply sufficient to disinfect the worst *fomites*. It has been shown, too, that heat of the necessary degree for disinfection may be made applicable in some form to almost every article of commerce without injury. Even

crude sugar will stand a temperature of 200° of dry heat for an indefinite length of time without danger of melting or other injury; while 150° is amply sufficient for disinfection. Careful discrimination in the application of heat, as of all other means to the same end, is of course requisite. The examples given are belived to be an amply sufficient guide for the application of heat as a disinfectant under the most variable circumstances.

Of the use of *chlorides*, *manganates*, and kindred chemical disinfectants (?), the writer has had abundant opportunity for observation and experiment. In November, 1847, the United States Government employed a somewhat celebrated doctor of New York to proceed and disinfect the naval squadron near Vera Cruz. He professed to use some new process; but his means was evidently a *chloride*. His first (and last) experiment was the frigate *Mississippi*, which vessel, though she had recently been broken-out, saturated with chlorine by chloride of lime, aerated and thoroughly cleansed, nevertheless continued to have cases of yellow fever until she was submitted to a northern winter. The "doctor of infection" was himself taken with yellow fever about the second week of his attendance on his first patient—the *Mississippi;* he fortunately recovered and returned home. The *Khersonese* and *Dispatch* are similar examples, but under more favorable circumstances. By the use of such means only, individuals are often beguiled into a feeling of security by trusting to *deodorants* merely, until they fall victims to a still active infection.

Brooklyn, N. Y., *August 18th*, 1863.